Exhibit No.:	
Issues:	Site Determination & Certificate of Convenience and Necessity (CCN)
Witness:	Warren T. Wood
Sponsoring Party:	MO PSC Staff
Type of Exhibit:	Rebuttal Testimony
Case No.:	EA-2006-0309
Date Testimony Prepared:	April 4, 2006

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

REBUTTAL TESTIMONY

OF

WARREN T. WOOD

AQUILA, INC.

D/B/A AQUILA NETWORKS - MPS

CASE NO. EA-2006-0309

Jefferson City, Missouri
April 2006

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of Aquila, Inc. for Permission and Approval and a Certificate of Public Convenience and Necessity Authorizing it to Acquire, Construct, Install, Own, Operate, Maintain, and otherwise Control and Manage, and otherwise Control and Manage Electrical Production and Related Facilities in Unincorporated Areas of Cass County, Missouri Near the Town of Peculiar	)	Case No. EA-2006-0309

AFFIDAVIT OF WARREN T. WOOD

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Warren T. Wood, of lawful age, on his oath states: that he has participated in the preparation of the following Rebuttal Testimony in question and answer form, consisting of 28 pages of Rebuttal Testimony to be presented in the above case, that the answers in the following Rebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.

Warren T. Wood

Subscribed and sworn to before me this 3rd day of April, 2006.

Dawn L. Hake
Notary Public

DAWN L. HAKE
My Commission Expires
March 16, 2009
Cole County
Commission #05407643

My commission expires_____

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REBUTTAL TESTIMONY

OF

WARREN T. WOOD

AQUILA, INC.

D/B/A AQUILA NETWORKS - MPS

CASE NO. EA-2006-0309

Q. Please state your name and business address.

A. Warren T. Wood, P.O. Box 360, Jefferson City, Missouri 65102.

Q. By whom are you employed and in what capacity?

A. I am the Director of the Missouri Public Service Commission (Commission) Staff's Utility Operations Division.

Executive Summary

Q. Please give a brief summary of your rebuttal testimony.

A. My rebuttal testimony responds to the direct testimony in this case and in doing so provides Staff's position on:

1) What is a reasonable process for determining a site to build a natural gas-fired simple-cycle power generation facility;

2) Did Aquila's process produce a reasonable determination that the current site, near Peculiar, Missouri, referred to as South Harper, is a reasonable location for the natural gas-fired simple-cycle power generation facility that is now operable, but not operating, at that site;

3) Should the Commission grant Aquila a site-specific certificate of convenience and necessity (CCN) for the power generation facility at South Harper and associated substations;

4) What is the present nature of Aquila's service territory as granted to it or its predecessors in previous proceedings before the Commission around the South Harper plant and the Peculiar Substation; and

5) Statements made in the recent local public hearing on March 20, 2006 by the parties and statements made elsewhere by some of the parties regarding substations and generation facilities that are relevant to this case.

Q. Please describe your educational and professional background.

A. In December 1987, I received a Bachelor of Science degree in Civil Engineering from the University of Missouri at Columbia, Missouri. Upon graduation, I accepted employment with Black & Veatch Engineers – Architects and worked in the Energy and Environmental divisions of this consulting firm for a little over ten years.

While at Black & Veatch I designed a wide range of power generation and water treatment associated facilities, acted as an engineering liaison between our design office and joint venture partner offices, developed specifications, drafted engineering drawings, designed mechanical equipment supports and wrote custom computer programs to assist in solving many types of engineering problems. My work while at Black & Veatch focused on new and retrofit work on coal, combustion turbine, and nuclear power plant projects. I worked for Questec Engineering in Columbia, Missouri in 1997 and 1998. While at Questec I was a project manager in charge of site development and completion

of numerous types of engineering projects for industrial, commercial and residential customers.

I have worked for the Commission for about seven years. Initially I was hired as a Regulatory Engineer in the Procurement Analysis Department of the Commission. While working in the Procurement Analysis Department I investigated the natural gas purchasing practices of Missouri's natural gas utilities and filed testimony in procurement analysis and actual cost adjustment audit cases. Later, I was employed as the Natural Gas Department Manager, promoted to the newly created Energy Department Manager position and was recently promoted to Utility Operations Division Director. As the Natural Gas Department Manager I oversaw the regular tariff filings at the Commission of the natural gas utilities in the state, the Commission's activities in interstate natural gas pipeline cases at that Federal Energy Regulatory Commission (FERC) and the activities of the Commission's natural gas safety section. As the Energy Department Manager I oversaw the activities of the natural gas department sections listed above in addition to the activities of the engineering and economic analysis sections, which deal primarily with electric utilities in the state. In addition to overseeing the day-to-day activities of the Operations Division in my current position, I also regularly participate in presentations to stakeholder groups, legislative committees, conduct roundtables and facilitate rulemaking workshops.

I am a registered Professional Engineer in the State of Missouri and hold a certificate of registration from the National Council of Examiners for Engineering and Surveying. I am a member of Tau Beta Pi, an honorary engineering society and Chi Epsilon, an honorary civil engineering society.

Q. Have you previously filed testimony before this Commission?

A. Yes, I have previously filed testimony before this Commission in Ozark Natural Gas Co., Inc., Case No. GA-96-264, Laclede Gas Company, Case No. GR-96-193, Missouri Gas Energy, Case No. GR-96-285, Empire District Electric Company, Case No. ER-97-81, Missouri Public Service, Case No. GR-95-273, Missouri Gas Energy, Case No. GO-97-409, Associated Natural Gas Company, Case No. GR-97-272 and United Cities Gas Company, Case No. GO-97-410. I have also recently provided oral testimony in Kansas City Power & Light Company (KCPL), Case No. EO-2005-0329, Aquila, Inc. electric divisions MPS and L&P, Case No. EO-2005-0293 and Empire District Electric Company, Case No. EO-2005-0263, on their generation plant resource planning, in the experimental regulatory plan cases they filed with the Commission associated with the construction and their joint ownership of Iatan II.

Q. What is the purpose of your rebuttal testimony?

A. As a result of Aquila's pending filing, I expanded the scope of the work that I had previously performed regarding Aquila's decision to build the South Harper facility. My rebuttal testimony will address:

1) In Aquila witness Terry S. Hedrick's direct testimony, he describes typical site selection criteria (page 4, line 9 through page 7, line 2). I will provide Staff's position on what is a reasonable process for determining a site to build a natural gas-fired simple-cycle power generation facility (**Site Determination, starting on page 6**);

2) In Aquila witness Terry S. Hedrick's direct testimony, he describes the site selection process that Aquila used to site the South Harper plant (page 7, line

4 through page 8, line 18). Chris R. Rogers, of Sega Inc., testifying on behalf of Aquila in this case, in his direct testimony describes Sega's site selection process used to site the South Harper plant (page 2, line 14 through page 9, line 22). I will provide Staff's position on did Aquila's process produce a reasonable determination that the current site, near Peculiar, Missouri, referred to as South Harper, is a reasonable location for the natural gas-fired simple-cycle power generation facility that is now operable, but not operating, at that site (**Aquila's Process, starting on page 9**);

3) In Aquila's filed Application and in Aquila witness Jon R. Empson's direct testimony, the purpose of Aquila's Application is given (page 2, lines 1 through 9). I will provide Staff's position on should the Commission grant Aquila a site-specific CCN for the power generation facility at South Harper and associated substations (**Granting CCN, starting on page 19**);

4) In Aquila witness Jon R. Empson's direct testimony, he describes the site location of the South Harper plant and Peculiar Substation (page 2, line 18 through page 3, line 21). I will provide Staff's position on what is the present nature of Aquila's service territory as granted to it or its predecessors in previous proceedings before the Commission around the South Harper plant and Peculiar Substation (**Aquila's Service Territory, starting on page 24**); and

5) In Aquila witness Carl A. Huslig's direct testimony, he describes the necessary transmission facilities to interconnect the South Harper plant to the existing transmission system (page 4, line 3 through page 5, line 19). Concerns about substations and generation facilities were expressed by some of the

witnesses in the recent local public hearing on March 20, 2006 and were made elsewhere by some of the parties to this case. I will provide a Staff response to some of these statements regarding substations and power generation facilities (**Substations, starting on page 25**).

Q. Are other Commission Staff filing testimony in this case and if so, who are they and what issues are they addressing?

A. Yes. Lena Mantle and Leon Bender are also filing testimony in this case. Mrs. Mantle is the Commission's Energy Department Manager and will address the need for the type of power generation facilities at South Harper. Mr. Bender is an Engineer in the Commission's Energy Department and will address visual screening, sound attenuation and emission control efforts at the South Harper plant site.

Site Determination

Q. What is a reasonable process for a utility to determine a site to build a natural gas-fired simple-cycle power generation facility?

A. A reasonable process for determining a site for a natural gas-fired simple-cycle power generation facility should generally include the following major steps:

1) Identification of areas within a utility's service territory where significant energy usage is occurring and areas where energy usage is expected to increase;

2) Identification of areas noted in step (1) that are not in close proximity to existing generation facilities, are near an existing generation facility that will likely be retired in the near future, are near an existing generation facility that has

room for additional generation units, or are near an area where required energy needs are expected to significantly exceed an existing generating facility's capabilities;

3) Identification of major natural gas transmission pipelines that have sufficient available capacity, adequate pressure and access to natural gas supplies to serve such a prospective generation facility and pass through the areas identified in step (2);

4) Identification of electric transmission lines that have sufficient available capacity, or can be reasonably upgraded, to serve such a prospective generation facility, provide transmission to the areas that need to be served by the planned generation facility and pass through the areas identified in step (2);

5) Identification of areas where the natural gas transmission pipelines in step (3) and the electric transmission lines in step (4) come within a reasonable distance of each other;

6) Review county plat books for the areas identified in step (5) to determine if there are properties in the areas identified in step (5) that appear suitable for such a prospective generation facility and begin visiting with landowners to determine ability to purchase potential parcels of land for such a prospective facility;

7) Carefully evaluate each of the potential sites identified in step (6) for line-of-site population density, natural buffers between the generation facility and nearby residents or the ability to construct buffers, natural gas pipeline extension cost, transmission line upgrade and extension costs, land acquisition cost,

suitability of geology for construction of generation facility foundations, emissions compliance cost, possible air or land permitting problems, access to other needed infrastructure such as water and other potential costs to address potential concerns of the nearby communities and residents;

8) Communicate with any nearby communities and residents to receive feedback on concerns with construction of the planned generation facility in the area;

9) Address concerns of the nearby communities and residents to the greatest extent possible associated with the "optimal site"; and

10) If the concerns of the nearby communities and residents cannot be addressed at the "optimal site", go back to step (6) to determine if another site is reasonable and repeat the steps after step (6), unless there are reasons why going back to step (6) is not reasonable.

Q. Is this the only reasonable process for determining a site to locate a power plant?

A. No. Steps (3) through (10) may be skipped if an existing generation facility site has available space for the needed additional unit or units and new or upgraded transmission facilities are not prohibitively expensive to serve the areas identified in step (2). Also, the steps noted above can be significantly altered if a community has an interest in attracting a generation facility and proposes conditions that ameliorate limitations that may have earlier prevented a community from being considered for siting of the generation facility. If any of the steps identified above eliminate all potential areas from further consideration, it will be necessary to broaden the

site selection criteria in order to identify possible areas for further consideration even though the areas may be less than "optimal". Timeliness of the resolution of this process must also be considered. Recognizing that there may be no site free of local opposition, the utility attempting to site generation to reliably and cost-effectively serve its customers cannot continuously cycle from step (10) back to step (6). At some point the utility will have to actually move ahead with construction of the generation facility if it is committed to meeting its capacity needs by construction of generation.

Q. How might this process be different for other types of generation facilities?

A. While some of the steps might not change for a different type of generation facility, others would. For example, a coal-fired power plant is typically much larger than a natural gas-fired power plant and requires access to large quantities of coal so a much larger land area, with much larger buffer zones and access to an on-site mine or to rail transportation becomes very important.

Aquila's Process

Q. How did Aquila's process for choosing South Harper for a natural gas-fired simple-cycle generation plant compare to the process you have described?

A. Many aspects of Aquila's process for determining the site for the generation units at South Harper compare favorably to the process I have described. However, some of the steps taken by Aquila are different than the process I have described. Aquila's process initially yielded a site I will refer to as the "Camp Branch" site near Harrisonville. In response to local opposition at the Camp Branch site, Aquila

and Sega expanded their site selection process to include communities that did not appear to be opposed to having generation sited in their vicinity. Sega is the consulting engineering firm that Aquila hired to perform the comprehensive site evaluation studies used in siting of the natural gas-fired generation units in this case. This expanded site selection effort resulted in the decision to go to the South Harper site near Peculiar. I will restate each of the steps I identified earlier and note how Aquila's process compares:

1) ***Identification of areas within a utility's service territory where significant energy usage is occurring and areas where energy usage is expected to increase;***

Aquila started its assessment of where to place natural gas-fired simple-cycle generation facilities in its service territory with this step. I have reviewed population and energy growth rate information for Aquila's service territories in Missouri and confirmed that Cass County was an appropriate place to site a simple-cycle natural gas-fired generation plant. A summary of the information I reviewed is attached as **Schedule WW-1** and **Schedule WW-2**.

2) ***Identification of areas noted in step (1) that are not in close proximity to existing generation facilities, are near an existing generation facility that will likely be retired in the near future, are near an existing generation facility that has room for additional generation units, or are near an area where required energy needs are expected to significantly exceed an existing generating facility's capabilities;***

After Aquila had identified Cass County as an appropriate area to place a simple-cycle natural gas-fired generation plant, it looked at current plant locations and

considered either, 1) adding generation at an existing facility in the area, or 2) siting new generation separated from other facilities. A map showing Aquila's service territories and existing generation facilities is attached as **Schedule WW-3**. When siting peaking facilities, at least two advantages to siting the facility away from other facilities and as close as possible to the area to be served during peak demand periods can be seen. The first advantage is the avoidance of having too many peaking plants in one area such that they are all subject to a common failure such as a local natural gas pressure problem, a local water pressure problem, a transmission line problem, a natural disaster, or a terrorist act. The second advantage is the minimization of dependence on transmission paths to serve areas needing the energy from the peaking facility. By locating the peaking plant close to the customers who need the energy during peak periods, losses are reduced and the risk of overloading of the transmission system is minimized.

The simple-cycle natural gas-fired generation units that are the subject of this case are peaking units. I refer to them as peaking units since they are used to serve periods of peak demand. These periods are typically during particularly hot or cold weather when a high number of customers are using air conditioners or heaters to maintain their household or business at a comfortable temperature.

3) ***Identification of major natural gas transmission pipelines that have sufficient available capacity, adequate pressure and access to natural gas supplies to serve such a prospective generation facility and pass through the areas identified in step (2);***

Aquila identified the major natural gas transmission pipelines passing through Cass County and confirmed that they had adequate capacity, pressure and access to

natural gas supplies. Aquila also recognized the inherent advantages of having two separate interstate natural gas pipelines in close proximity in this area. Having access to two different interstate natural gas pipelines enhances the reliability of the generating plant and provides for competition between the pipelines in negotiating rates.

4) ***Identification of electric transmission lines that have sufficient available capacity, or can be reasonably upgraded, to serve such a prospective generation facility, provide transmission to the areas that need to be served by the planned generation facility and pass through the areas identified in step (2);***

Aquila, acting as its own tariff administrator in coordination and in compliance with Southwest Power Pool, Inc. (SPP) planning processes, identified the necessary electric transmission lines to interconnect the planned generation facility into the local grid in a manner that would provide for reliable delivery of power. The planned generation facility's operability was then verified through modeling by SPP.

SPP, a FERC-approved regional transmission organization (RTO), serves more than 4 million customers and covers a geographic area of over 250,000 square miles. SPP's membership includes 13 investor-owned utilities, 7 municipal systems, 9 generation and transmission co-ops and several independent power producers and power marketers. Aquila joined the SPP Regional Tariff on July 1, 2005, after the transmission facilities for South Harper and the Peculiar substation were in-service.

A portion of the map showing the natural gas transmission lines and electric transmission lines looked at by Aquila and Sega in the area of greatest energy and population growth is attached as **Schedule WW-4**.

5) Identification of areas where the natural gas transmission pipelines in step (3) and the electric transmission lines in step (4) come within a reasonable distance of each other;

In steps (3) and (4) Aquila identified the natural gas and electric transmission lines that were capable of supporting reliable operation of a natural gas-fired generation plant. In this step it identified the areas where the needed electric and natural gas infrastructure are within reasonable proximity of one another. In the area of Cass County of greatest interest to Aquila, the interstate natural gas pipelines generally run east-west while the electric transmission lines generally run north-south. This configuration quickly points to the most reasonable areas being near where the natural gas and electric transmission lines cross. In **Schedule WW-4** these areas are in the bottom right corner of the schedule, North of Harrisonville and the bottom left corner of the schedule, South of Peculiar.

6) ***Review county plat books for the areas identified in step (5) to determine if there are properties in the areas identified in step (5) that appear suitable for such a prospective generation facility and begin visiting with landowners to determine ability to purchase potential parcels of land for such a prospective facility;***

After Aquila and Sega had identified the reasonable areas in step (5), they chose the electric and natural gas infrastructure cross-over north of Harrisonville as well as some sites near Raymore and Belton as the most reasonable areas for further consideration. The primary reason for initially choosing the area near Harrisonville was its proximity to an Aquila 161 kV transmission line that would need very few upgrades to

accommodate the planned generation facility. Aquila and Sega then proceeded with contacting landowners in suitable areas, identified by looking at plat books, to determine if land could be reasonably acquired.

7) Carefully evaluate each of the potential sites identified in step (6) for line-of-site population density, natural buffers between the generation facility and nearby residents or the ability to construct buffers, natural gas pipeline extension cost, transmission line upgrade and extension costs, land acquisition cost, suitability of geology for construction of generation facility foundations, emissions compliance cost, possible air or land permitting problems, access to other needed infrastructure such as water and other potential costs to address potential concerns of the nearby communities and residents;

The specific potential sites identified in step (6) where then individually evaluated to determine the most reasonable site. The evaluation matrix developed by Sega that shows the results of this evaluation is attached as **Schedule WW-5a**. A map that shows the locations of these sites is attached as **Schedule WW-5b**. At this point in Aquila's process, Aquila identified the Camp Branch site, which was also referred to as the South 235th Street site.

8) Communicate with any nearby communities and residents to receive feedback on concerns with construction of the planned generation facility in the area;

In step (7) Aquila selected the Camp Branch site in conjunction with discussions with the City of Harrisonville and Cass County. A public meeting was held to receive local input regarding the Camp Branch site that two Commission Staff attended. The

public input received at this meeting showed significant resistance to Aquila constructing a generation facility at this site. Also, the City of Harrisonville passed a resolution in opposition to Aquila building this generation plant at this site.

9) ***Address concerns of the nearby communities and residents to the greatest extent possible associated with the "optimal site"; and***

In response to clear local opposition to the placement of a generation plant at the Camp Branch site in the vicinity of Harrisonville, Aquila and Sega expanded their site selection effort. This expanded site selection effort and communications with City of Peculiar officials resulted in Aquila's decision to go to the South Harper site near Peculiar. The evaluation matrix developed by Sega as a result of this expanded search effort is attached as **Schedule WW-6a** and **Schedule WW-6b**. As this matrix shows, Aquila and Sega viewed the South Harper site as the most reasonable site at that time.

10) ***If the concerns of the nearby communities and residents cannot be addressed at the "optimal site", go back to step (6) to determine if another site is reasonable and repeat the steps after step (6), unless there are reasons why going back to step (6) is not reasonable.***

Aquila viewed the local opposition of the residents and City of Harrisonville to the Camp Branch site as a setback and expanded their search area in response to this opposition. During this same time frame, City of Peculiar officials expressed support for having a generation plant located nearby. The City's officials expressed support for the project coupled with the possibility of annexation and Chapter 100 financing. This made the South Harper site particularly attractive from an optimal cost and local city support perspective. At this point Aquila went back to step (6).

A review of potential plots of land yielded the current South Harper generation plant site and substation site near Aquila's 345 kV line north of Peculiar. **Schedule WW-6a** and **Schedule WW-6b** show the result of Aquila and Sega's site evaluations in step (7). At this point Aquila returned to step (8) and met with members of the Peculiar Chamber of Commerce on September 14, 2004. Aquila then issued a news release on October 6, 2004 regarding a public information meeting that was held at the Peculiar Lions Club building on October 11, 2004. Also, on October 7, 2004, Aquila published open house notices in some of the newspapers in the area. Aquila then proceeded with mobilization of construction equipment and began grading on October 14, 2004.

By mid-October local resident opposition to the South Harper site was growing. This opposition grew in the days following site mobilization and on October 23, 2004, the Peculiar City Council decided not to go forward with annexation efforts but did approve Chapter 100 financing for the project. Some local resident opposition to the South Harper site was obvious but it was mixed with support from City of Peculiar officials and support from the landowner who had sold the site property to Aquila, the local West Peculiar Fire Chief, the local Public Water Supply District, the Superintendent of the East Lynne Number 40 School District and others based on testimony received at the local public hearing I attended that was held by the Commission in Case No. EA-2005-0248 on March 15, 2005.

Step (9), where Aquila would have addressed the concerns of the nearby communities and residents to the greatest extent possible associated with the "optimal site" is where problems have occurred and these problems have now brought the parties

to the pending case to the existing situation respecting the South Harper generation plant and associated substations.

Q. Based on your own observations of what has occurred, what is the relationship between Aquila and some of the nearby homeowners?

A. Aquila opted to move forward with construction of the South Harper generation facility and associated substations before it had established itself as a trusted "neighbor" in the area. In fact, some of the homeowners in the area that testified in March 2005 at the Case No. EA-2005-0248 local public hearing stated that they were intimidated, their roads had been degraded, Aquila security patrols had shined lights in their homes and that their concerns had been generally ignored.

I believe that if Aquila had worked more closely with some of the homeowners, and before the South Harper generating plant and substations were built had proposed some of the neighborhood improvements that have now taken place, the relationship would be much better now. I'm not suggesting that everyone would be happy, but I do believe that many of the concerns of the nearby homeowners could have been addressed. It is typically much more difficult to develop trust within someone after they feel they have been snubbed than before.

The current situation is unfortunate, since Cass County is growing and will contribute to the overall utility growth rate and revenue, and Aquila has an obligation to serve and this area needs additional installed generation capacity to serve peak demand periods.

Q. Would addressing the local homeowner and Cass County concerns earlier in this process, as you suggest, add to the timeline necessary for site selection?

A. Yes. I do expect that these efforts to work with the local community and nearby homeowners before a power plant is constructed would add months to the site selection process. Utilities should consider the time necessary for development of these relationships in their plant site selection process if they do not already. I must also note however that counties and cities need to be cognizant of the need for electric generation plants, substations and transmission lines to be built in their vicinity, and make efforts to offer reasonable solutions to the local electric service provider, if continued reliable electric service at least cost is to be expected.

Q. Please address Aquila's apparent decision to proceed with construction of the South Harper generation facility and associated substations despite local resident and county opposition?

A. Aquila continued to move ahead with construction of the South Harper generation plant and the related transmission and substation infrastructure for at least several reasons, in no particular order:

First, Aquila was moving ahead with a self-build option versus continued reliance on purchased power arrangements consistent with past discussions with the Commission Staff;

Second, Aquila believed that the concerns expressed by the local residents could be addressed to a reasonable degree;

Third, Aquila believed that City of Peculiar officials wanted the generation facility built near their community and would continue to be supportive of the plant;

Fourth, Aquila was running short on time to complete construction of a generation plant to reliably serve peaking loads for the summer of 2005;

Fifth, Aquila believed it had the authority to construct generation facilities in their service territory without further approval; and

Sixth, on April 7, 2005, Aquila received a Commission Order, in Case No. EA-2005-0248, confirming its authority to construct generation facilities in their service territory without further Commission approval.

Granting CCN

Q. Do you believe that Aquila should be granted a site-specific CCN for the facilities constructed at the South Harper plant site and the bulk 345 kV to 161 kV substation northwest of Peculiar?

A. Yes. Aside from the legal issues raised by Cass County and StopAquila.org, Staff believes this question comes down to two basic questions:

1) Is this power plant an appropriate facility for Aquila to be constructing to serve its customers?
2) Are these reasonable sites to be constructing a natural gas-fired generation plant and a bulk substation?

As a preliminary matter, counsel for the Staff, other members of the Staff and I have reviewed the information provided by Aquila in its Application and believe that Aquila's filing is in compliance with the Commission's rules.

Mrs. Mantle addresses the answer to the first question above in her rebuttal testimony.

The second question boils down to whether Aquila used a reasonable process for determining that the South Harper site was an appropriate location for a simple-cycle

natural gas-fired power plant. As I have previously testified, I do believe that Aquila generally followed a reasonable process for determining that the South Harper site was an appropriate location for a natural gas-fired simple-cycle power plant.

The location of the South Harper power plant site drove the location of the 345 kV to 161 kV substation northwest of Peculiar. This substation was also located to minimize the needed right-of-way distance and take advantage of an existing 69 kV right-of-way.

Q. You have recommended that the Commission grant Aquila a site-specific CCN for the South Harper site and the South Harper related bulk substation northwest of Peculiar, even though you noted they had not followed through on step (9) of your recommended steps for determining a reasonable site for a natural gas-fired power plant. Please explain.

A. While Aquila carries the responsibility for the shortness of schedule to build generation to reliably serve the summer 2005 peak, and this situation contributed to its decision to move ahead with construction despite some local opposition, Aquila was taking action to assure reliable service to its customers and has been taking significant measures to address local opposition. If Aquila had made the decision to move ahead with construction of the South Harper facility in an environment where a large majority of the stakeholders was telling Aquila that it was taking a course of action strongly opposed by the stakeholders which would have the major ramifications that are now potentially facing Aquila, Staff would possibly have a different recommendation for the Commission's consideration at this time. Unfortunately, Aquila was choosing its actions based on conflicting messages from the stakeholders. As I have previously stated, I

believe that many of the problems now facing Aquila associated with the South Harper power plant and substations are the result of Aquila taking steps to address the concerns of nearby homeowners and Cass County only after beginning to construct the plant.

Q. Is the Commission able to impose conditions on granting of a CCN?

A. Yes. RSMo Chapter 393.170.3 includes: "by its order impose such condition or conditions as it may deem reasonable and necessary".

Q. Do you recommend that the Commission include any conditions in its granting of a site-specific CCN for the South Harper power plant and associated substation sites?

A. Yes, but with the thought that some or all of these conditions have already been satisfied at the South Harper site. In Case No. EA-2005-0248, Staff had developed a list of conditions for granting a site-specific CCN for the South Harper site. The hearings in that case ended before these Staff recommended conditions were entered into the record. The following is Staff's Case No. EA-2005-0248 list of South Harper site-specific CCN conditions:

1) Roads must be repaired at the conclusion of work to equal or better condition than when Aquila first started working on this site.

2) Roads must be worked on at least weekly to repair any ruts or holes and dust abatement measures are adopted.

3) Sound abatement measures must be fully utilized (stack attenuation, turbine acoustical enclosures, berms, trees, and strict adherence by Aquila to the sound limits in its contract with the manufacturer).

4) Emergency horns and sirens must be focused to the attention of site personnel and not the entire neighborhood.

5) Security patrols must be very carefully conducted to only oversee Aquila's resources and not increase traffic in areas not associated with this effort.

6) Security lighting of the completed facility must be subdued and be specifically designed to minimize "sky shine" that would impact the surrounding area.

Q. Which of these conditions has Aquila already satisfied?

A. Aquila has already satisfied conditions 1, 2, 3 and 5. Staff witness Bender's rebuttal testimony provides details regarding Aquila's efforts to satisfy condition 3. Aquila may have also satisfied conditions 4 and 6 but I have not yet confirmed this.

Q. Have you been to the South Harper plant site?

A. Yes.

Q. Have you been to the sites of other simple-cycle natural gas-fired generation plants?

A. Yes. I have been to and/or seen aerial photos of the sites of numerous electric utility generation plants. Many of these generation plants were simple-cycle natural gas-fired plants.

Q. How does land use in the vicinity of the other simple-cycle natural gas-fired generation plant sites you have seen compare to land use in the vicinity of the South Harper plant?

A. Land use in the vicinity of the simple-cycle generation plants I have seen included sparsely populated agricultural, residential and industrial areas. The South Harper plant is in an agricultural area with a housing density that is rural in nature. This type of land use is not uncommon in the vicinity of these types of electric generation plants. In some cases the population density around these types of plants is relatively dense, approaching that of a residential area, but often the current housing density around the generation plant includes homes that were built after the generation plant was operating.

Q. Are you aware of the zoning of the South Harper plant and Peculiar Substation sites?

A. Yes. The South Harper plant and Peculiar substation are constructed in unincorporated Cass County, on sites that are zoned agricultural. The South Harper plant is however located immediately adjacent to an interstate natural gas pipeline compressor station that was constructed at this site long before the South Harper plant was built.

Q. Did you consider land use in the vicinity of the South Harper plant and associated substations in your decision to recommend that the Commission grant Aquila a site-specific CCN for the South Harper power plant and Peculiar substation?

A. Yes.

Q. Have you reviewed any findings of outside groups regarding the South Harper plant's impact to the surrounding area?

A. Yes. Bucher, Willis & Ratliff Corporation (BWR), acting as a Planning Advisory Consultant, provided the Cass County Planning Board with a memorandum

regarding Aquila's application for a Special Use Permit (SUP) that was discussed in a July 13, 2004 public hearing. In this BWR memorandum the following was stated:

> "The proposed use is buffered by deep setbacks, fencing and landscaping. In relation to the site and adjacent sites and land uses, the proposed use is therefore made more suitable than if there were no such proposed site improvements.
>
> The intensity of operations is industrial, though external impacts are apparently minimal: no dust after construction; no odors; and noise is proposed to be within sound levels for residential-compatible uses: less than 60 dBA."

Aquila's Service Territory

Q. Is the South Harper plant in Aquila's service territory?

A. Yes. I reviewed the county maps that Staff tracks service territory boundaries on and the South Harper generation plant site and South Harper related bulk substation northwest of Peculiar are in Aquila's service territory. These maps reflect the boundaries described in each electric utilities' tariffs. I have attached the relevant portion of the Cass County map that shows this boundary and the South Harper plant site as **Schedule WW-7**.

Q. Does Aquila have an exclusive right to provide electric service to electric consumers in Cass County?

A. No. Four different electric utilities serve Cass County. Aquila is the primary provider of electric service to the communities in Cass County. KCPL, Osage Valley Electric Cooperative and the City of Harrisonville also serve Cass County electric

consumers. The communities in Cass County, their relative size and their electric service providers are shown in the attached **Schedule WW-8**.

Substations

Q. You stated that Staff has a response to some statements made regarding substations and generation facilities related to the South Harper generation facility and Peculiar substation

A. Questions have been raised regarding whether substations (1) emit noise, (2) emit frequencies that are, potentially, cancerous and (3) are power generators. In response to these question, I will address the following:

1) The different types of substations and what they are needed for,

2) What emissions may come from a substation, and

3) Whether a substation is a power generator and necessary for a power plant to operate.

Q. What are the different types of substations and what is each type needed for?

A. I will describe why substations are necessary and the three primary types of substations. The attached diagram marked as **Schedule WW-9** shows the relative positioning of these substations.

To understand the need for a substation it is important to understand that energy is lost when electricity travels through electric transmission and distribution lines. At higher voltage levels (e.g., 69,000 to 345,000 volts) the energy losses are lower than at lower voltages (e.g., 7,200 to 34,000 volts) but customers still need power supplied to their

homes and businesses at even lower voltages (e.g., 240 volts). Therefore, one of the primary things that substations accomplish is raising and lowering voltages to minimize losses in electric transmission and distribution lines. Substations do not generate power but instead use power. Each time voltage is changed, either higher or lower, some energy is lost to make the conversion.

The first type of substation facility that is necessary when power comes from a generator at a power plant site is what I will refer to as a "plant substation". This substation includes the step-up transformer that takes the generator output voltage and steps it up to transmission level voltage. The plant substation then takes the transmission level voltage and ties the plant into the local transmission system. Power may be fed to the local transmission system by the plant substation and power may be provided to the power plant through the plant substation during plant start-up. Power needs to be delivered to the South Harper plant in order for the plant to be brought on-line since it does not have "black-start" capability. Black-start capability refers to a power plant's ability to start operating and delivering power to the grid without the aid of energy from an outside source.

The second type of substation facility I will describe is a "bulk substation". This substation typically reduces transmission level voltage to sub-transmission voltage (a lower voltage) near a load center where the power will be distributed to the next type of substation facility I will describe.

The third type of substation facility I will describe is the "distribution substation". This substation is necessary to reduce transmission or sub-transmission level voltage to distribution level voltage. Distribution level voltage lines are what most people see

running through their neighborhoods before the power is dropped to service level voltage at each home. This is the most common type of substation facility and the one that most people are familiar with.

Q. Why is it important to recognize the different types of substations in this case?

A. It is important to clarify that the substation on the South Harper site is not just a plant substation. The substation on the South Harper site is also a bulk substation and is necessary for step down from the 161 kV transmission lines to 69 kV transmission lines that serve the local communities. If the South Harper substation was required to be dismantled an additional substation would need to be built nearby to serve as a bulk substation if the communities served off the 69 kV transmission line are to continue to receive reliable electric service during peak demand periods.

Q. What emissions come from a substation?

A. Substations and transmission lines emit similar emissions. If they emit noise at all, it would normally be associated with insulator "buzz", very brief clicking sounds associated with switching or transformer "hum". They also emit electromagnetic fields (EMF). EMF is emitted whenever electric current flows in a conductor. EMF intensity drops off quickly as the distance from the source increases. EMF is emitted from electric transmission lines, distribution lines, cell phones, hair dryers, computers and other common household appliances that run on electricity.

Q. Do substations generate power and are they necessary for power plants to operate?

A. Substations do not generate power. As I have stated, they actually consume power. If a power plant is to be tied into the local transmission network a substation is generally required. Substations are necessary for power to be transmitted from power plants to customers efficiently. Very simply put, substations are to electric transmission and distribution lines what intersections and interchanges are to our highway system.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

Source: QuickFacts, US Census Bureau and
Aquila Sales Data by County

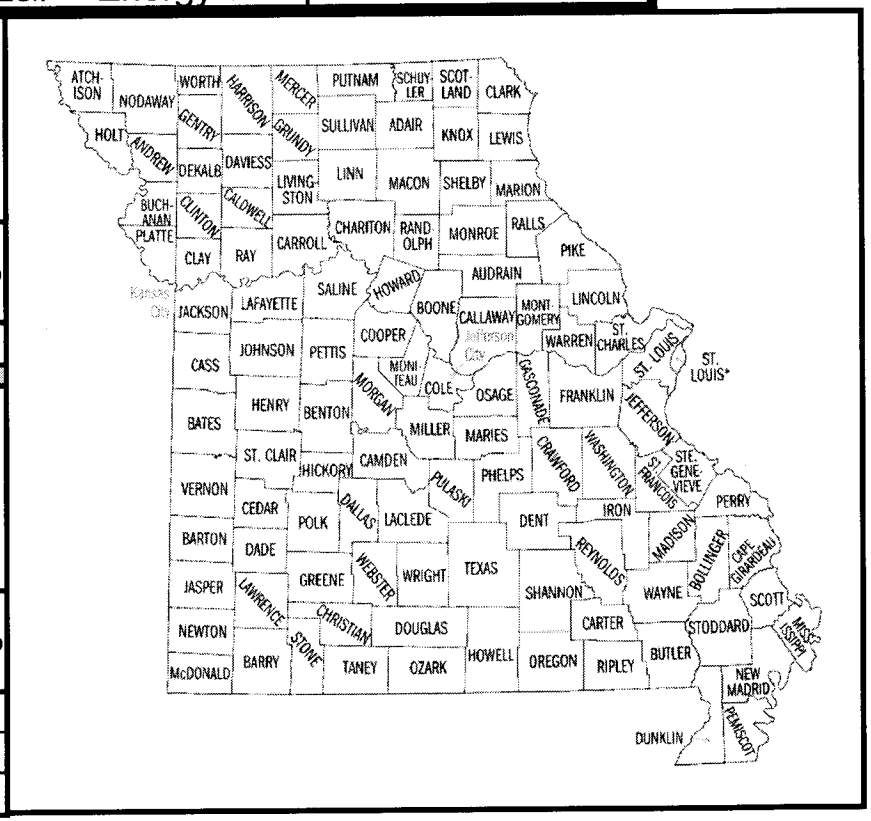
Counties Served by Aquila MPS or L&P - Energy & Population Growth

Counties with:
2000 to 2004 Energy Usage > 1,000,000 MWh;
2000 to 2004 Energy Growth > 20%;
Long-Term Population Growth > 20%; and
Short-Term Population Growth > 5%

County	Energy Growth 2000 to 2004	Population Growth 1990 to 2000	Population Growth 4/1/00 to 7/1/04
Cass	37%	28.7%	11.6%

Counties with:
2000 to 2004 Energy Usage > 1,000,000 MWh;
2000 to 2004 Energy Growth > 15%;
Long-Term Population Growth > 15%; and
Short-Term Population Growth > 5%

County	Energy Growth 2000 to 2004	Population Growth 1990 to 2000	Population Growth 4/1/00 to 7/1/04
Cass	37%	28.7%	11.6%
Clay	34%	19.9%	7.4%
Platte	15%	27.5%	9.7%



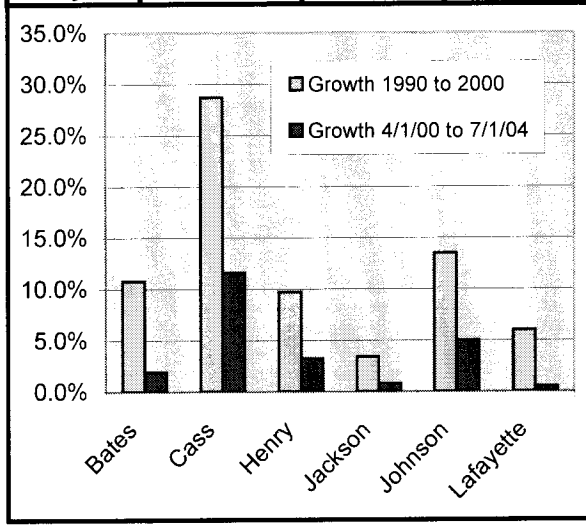
Case No. EA-2006-0309

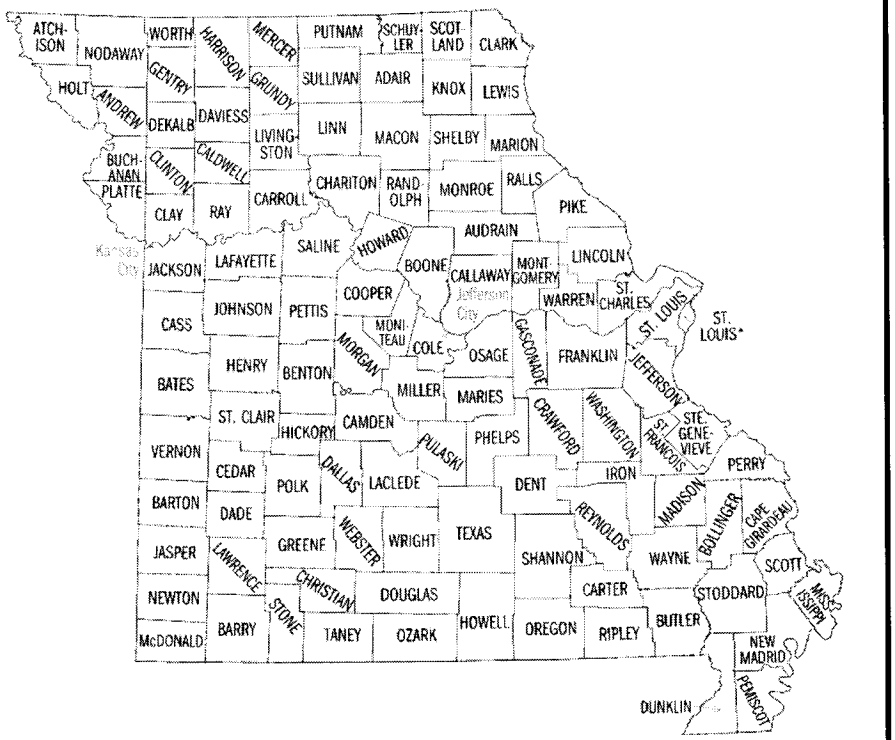
Schedule WW-1

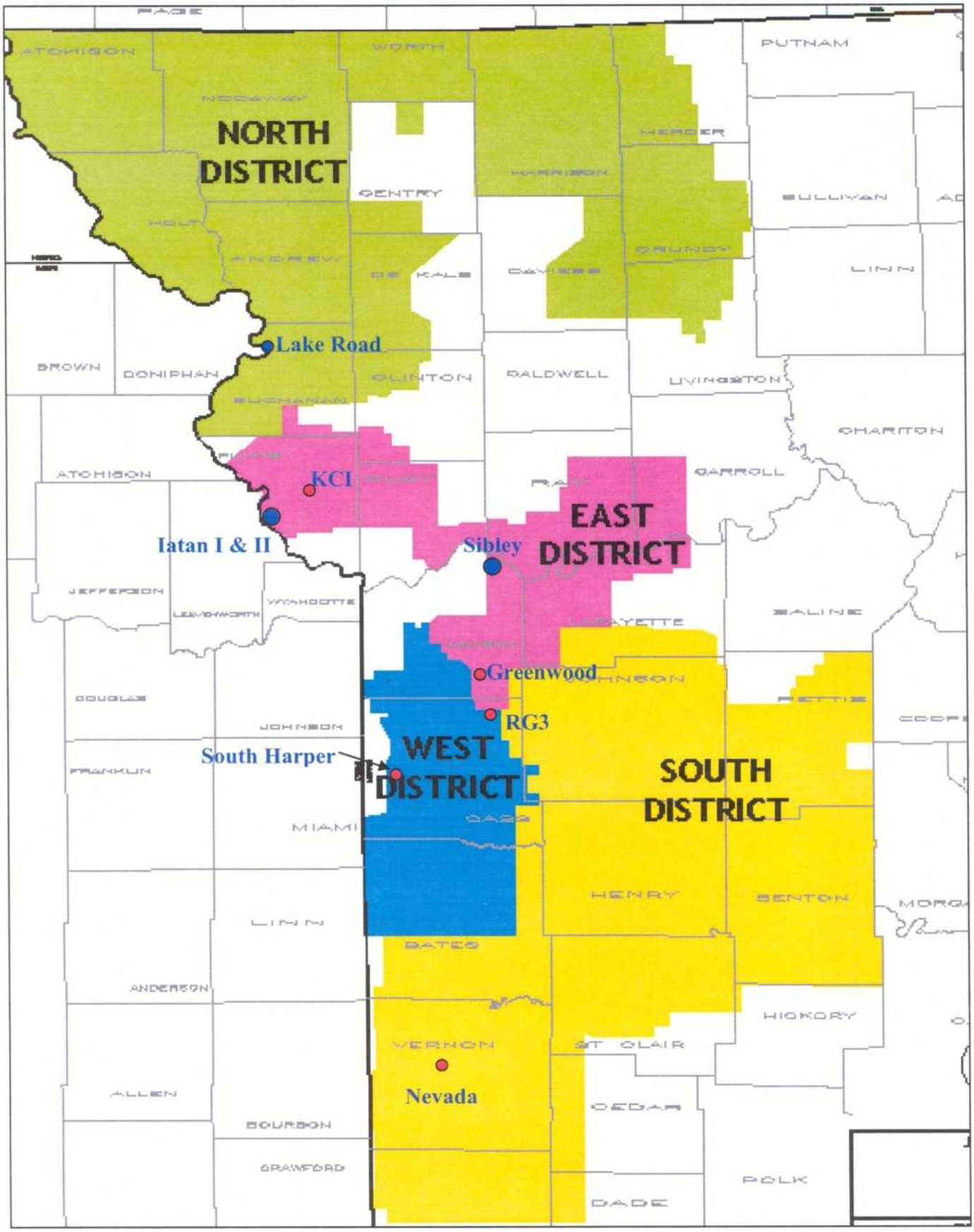
Source: QuickFacts, US Census Bureau

Southwest Aquila Service Territory County Populations & Growth

County	Population	Growth 1990 to 2000	Growth 4/1/00 to 7/1/04
Bates	16,965	10.8%	1.9%
Cass	91,593	28.7%	11.6%
Henry	22,701	9.7%	3.2%
Jackson	660,095	3.4%	0.8%
Johnson	50,669	13.5%	5.0%
Lafayette	33,134	6.0%	0.5%






NORTH DISTRICT
EAST DISTRICT
WEST DISTRICT
SOUTH DISTRICT
Lake Road
KCI
Iatan I & II
Sibley
Greenwood
RG3
South Harper
Nevada
ATCHISON
NODAWAY
WORTH
PUTNAM
MERCER
HARRISON
GENTRY
SULLIVAN
HOLT
ANDREW
DE KALB
GRUNDY
LINN
BROWN
DONIPHAN
CLINTON
CALDWELL
LIVINGSTON
CHARITON
BUCHANAN
CARROLL
RAY
JEFFERSON
LEAVENWORTH
WYANDOTTE
SALINE
LAFAYETTE
JOHNSON
DOUGLAS
PETTIS
FRANKLIN
MIAMI
CASS
HENRY
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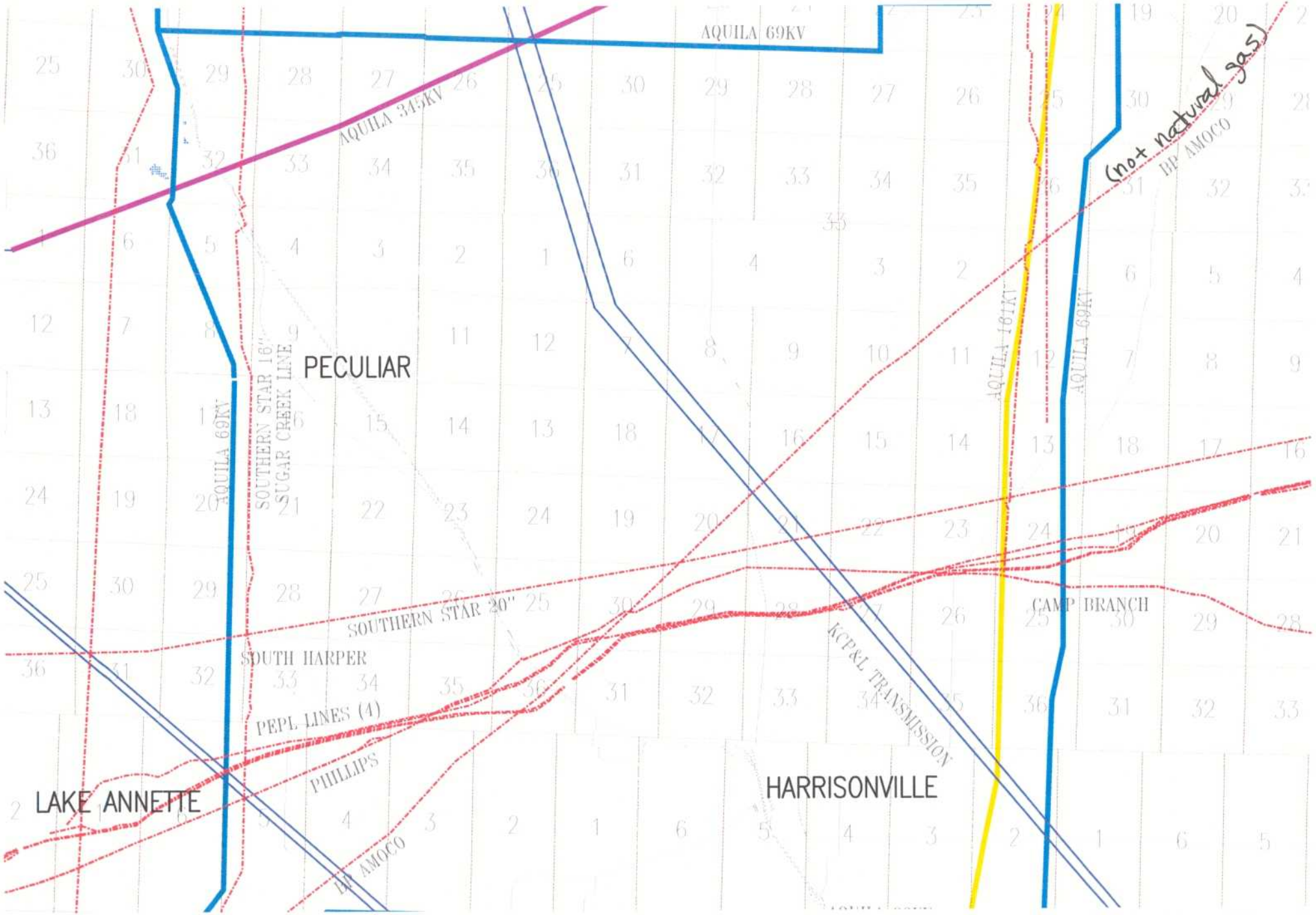


Case No. EA-2006-0309

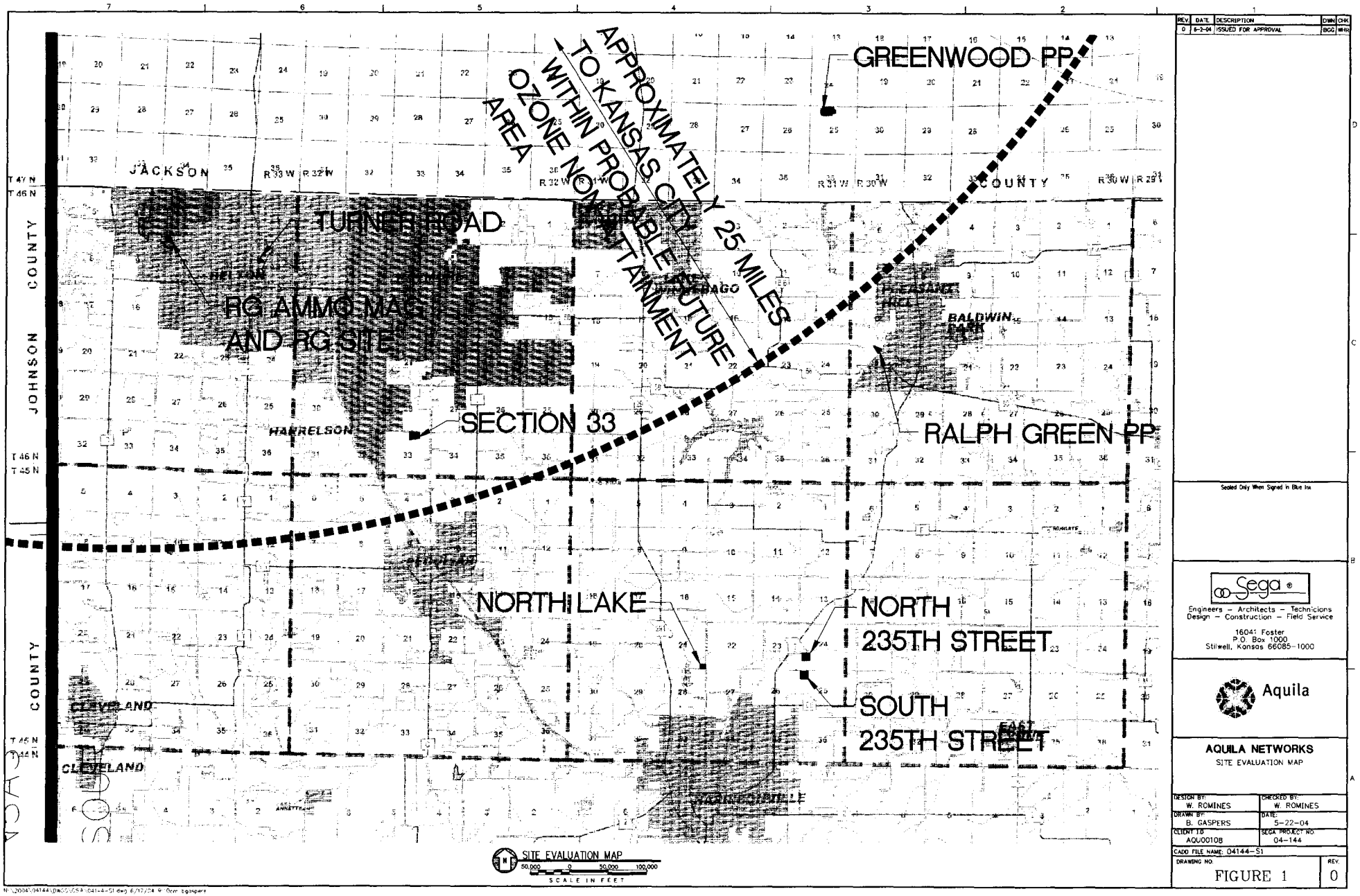
Schedule WW-4

Aquila Networks - Missouri
Aquila Energy Center Site Selection
Sega Project No. 04-0144

COMPREHENSIVE SITE EVALUATION SUMMARY TABLE: Listed in Recommended Ranking

	Site Name - County	Location in Missouri (City, Township, Range, Section, Elevation, Description)	Area for Development Δ Acquisition Cost [1]	Access to Electric (KCPL, MPS, V, etc.) Δ Improvement Cost [2]	Access to Natural Gas (Williams, Panhandle, Other, Line Size, Pressure) Δ Improvement Cost [3]	Access to Potable Water	Access to Sanitary Sewer	Air Permit Comments	Fatal Flaw Σ Δ Cost
1.	South 235th Street (near Aries gas connection), Cass County	South of Peculiar, T.45N-R.31W, Sect 25, EL-985 feet. One mile north of Harrisonville. Just northeast of intersection at Highway 7 and 235th Street.	40 acres @ $15,000/acres = $600,000 0	1) KCPL 161-kV intersection of Highway 7 and 235th Street. 2) Adjacent to MPS 161-kV line 0	1) 30-inch and 12-inch S. Star (Williams) lines 1 mile north. $1 M 2) Adjacent to Panhandle Eastern lines No. 100, 200, 300, and 400. $0.5 M 3) S. Star M&R 1 mile north. $1 M – Questionable Capacity 4) Adjacent to Panhandle Eastern M&R. 5) Cities gas service three miles north – Questionable Capacity 0	12-inch line along Hwy. EE Water District No. 9	Sanitary sewer located two miles south inside Harrisonville city limits.	Significantly distant from future ozone non-attainment area. Air Permit in Review	No Fatal Flaw 0
2.	North Lake, Cass County	City of Harrisonville Property East of North Lake, T. 45N-R.31W, Sect 21, EL-985 feet. One mile north of Harrisonville and one mile east of State Route 291 directly west of 235th Street and east of North Lake.	30 acres @ $15,000/acres = $450,000 **-$150,000**	1) KCPL 161-kV intersection of Highway 7 and 235th Street. 2) MPS 161-kV 2.25 miles east, 2.25M+ Overbuild at 7 Hwy and 235th and 69kV line tap=$1.0M+Time for easements **+$2.75 million** + time for easement acquisition	1) 30-inch and 12-inch Southern Star (Williams) lines 1 mile north of 235th Street. $1M – Questionable Capacity 2) Panhandle Eastern lines No. 100, 200, 300, and 400 south of North Lake $0.5 M **0**	12-inch line along Hwy. EE Water District No. 9	Sanitary sewer located two miles south inside Harrisonville city limits.	Significantly distant from future ozone non-attainment area, have to resubmit Air permit.	Schedule Impact-Reapply for Permits, transmission upgrades needed, 10 acres less than 235th Street Site so less options for laydown, landscape buffer strips, etc. and will require demo of firearm target range. **+$2.6 million + schedule impact**
3.	Greenwood PP, Jackson County	T.46N-R.32W, Sect 25 EL-1030 feet. West of James A. Reed Wilderness Area	22 Acres already owned **-$600,000**	Adjacent to MPS 161-kV, Possible improvements needed to T&D lines **0** + Possible Jackson Co. permit delay	1) Gas main 5 miles west and north, $5 M **+$4.0 million**	Existing potable water on site.	Existing sanitary sewer on-site.	Possibly within future ozone non-attainment area, have to resubmit Air permit.	Schedule Impact-Reapply for Permits, Improvement to T&D in **Jackson County** likely to prolong permitting, **+$3.4 million+ schedule impact**
4.	Section 33, Cass County	South of Raymore, T.46N-R.32W, Sect 33 EL-1030 feet. Half-mile southeast of Raymore city limits, off 195th Street.	40 acres @ $15,000/acre = $600,000 0	345-kV MPS overhead power line located just west of proposed site. Would require 1 new GSU transformers in sub @ $2.5 M **+$2.5 million**	1) Two Amoco lines 2 miles west – Questionable Capacity 2) Cities gas service 2 miles west, $2 M + creek crossing @ $50,000+boring at road @ $50,000+pigstation @ $150,000 = $2.25 M add to schedule for r.o.w. acquisition – Questionable Capacity **+$1.25 million** + time for r.o.w. acquisition	12-inch water line runs north along Section 32 and 33.	Existing sanitary sewer located in nearby subdivision or inside Raymore city limits.	Close to future ozone non-attainment area, have to resubmit Air permit.	Schedule Impact-Reapply for Permits, gas line extension impact to cost and schedule, and would require additional GSU transformer. **+$3.75 million+ schedule impact**
5.	North 235th Street (near Aries gas connection), Cass County	South of Peculiar, T.45N-R.31W, Sect 24, EL- 940 feet. 1 mile north of Harrisonville. Just northeast of intersection at 7 hwy and 235th Street.	40 acres @ $15,000/acres = $600,000 within full view of Shafer Estates Road - possible wetland areas/water features 0	1) KCPL 161-kV intersection of Highway 7 and 235th Street. 2) Adjacent to MPS 161-kV lines 0	1) 30-inch and 12-inch Southern Star (Williams) lines north of site $0.5 M 2) Adjacent to Panhandle Eastern lines No. 100, 200, 300, and 400 3) Adjacent to S. Star M&R 4) Adjacent to Panhandle Eastern M&R 5) Cities gas service 2.5 miles north. $2.5 M – Questionable Capacity **-$500,000**	12-inch line along Hwy. EE Water District No. 9	Sanitary sewer located two miles south inside Harrisonville city limits.	Significantly distant from future ozone non-attainment area, probably have to resubmit Air permit.	Schedule Impact-Reapply for Permits, adjacent to (within 600') Shafer Estates and within full view of Shafer Estate road, adjacent to high pressure gas, site located on water features which may cause schedule delay by complicating permitting, no future expansion, little laydown area, stormwater discharges directly to blue line. **-$0.5 million+ schedule impact**
6.	Turner Road, Cass County	Belton, T.46N-R.33W, Section 12 EL-1070 feet. Next to Turner Road Substation, Southwest of 71 Highway at intersection of State Highway Y and Turner Road.	20 acres @ $120,000/acre = $2,400,000 **+$1.8 million**	New MPS 161-kV substation being constructed right next to proposed site, so deduct cost of substation ($4 M) and add cost of reconductoring 5 miles of 69-kV, $4 M=0 **0**	1) Panhandle East 12 miles south, $12 M + crossings + extra wall thickness for line proximate to town, say 1.67x12 = $20 M + add to schedule for r.o.w. acquisition 2) Close to Richards Gebaur. Amoco line three miles east, $3 M – Questionable Capacity 3) Cities gas service three miles east, $3 M-Questionable Capacity **+$2 to $19 million** + time for r.o.w. acquisition	16-inch water line on North Scott and 16-inch water line along Highway 71.	12-inch sewer line just south of Turner Road.	Very close to future ozone non-attainment area, have to resubmit Air permit.	Schedule Impact-Reapply for Permits, Scenic Parkway may hinder development of needed acreage, land cost, gas line extension impact to cost and schedule, and cost of immediate upgrade of 5 miles of conductor. **+$3.8 to $20.8 million+ schedule impact**
7.	Ralph Green Power Plant, Cass County	Pleasant Hill, T.46N-R.30W, Section 19 EL-850 feet. Next to the Ralph Green Power Plant	Land already owned 0	161-kV substation 1 mile east- $1 M **+1 million**	1) Two Amoco gas lines 4 miles east of plant, $4 M – Questionable Capacity 2) 8-inch Southern Star line intersects existing plant – Questionable Capacity 3) 20-inch Southern Start line 4 miles east, $4M – Questionable Capacity 4) Panhandle Eastern lines 7 miles south, $7 M + crossings + extra wall thickness for line through town, say 1.67x7 M = $12 M **+4 to 12 million** + time for r.o.w. acquisition	Existing potable water on site.	Existing sanitary sewer on site.	Very close to future ozone non-attainment area, have to resubmit Air permit.	Insufficient Space to site 3 CT's on available land. **+$4 to $13 million+ schedule impact**
8.	Richards Gebaur Sites including Ammo Magazine, Cass County	Belton, T.46N-R.33W, Section 10 EL-1100 feet. Use of old Ammo Magazine site just south of Markey Road at Richards Gebaur.	40 acres @ $25,000/acre = $1 M **+$400,000**	Need to develop a line tap into the new 161-kV line running Martin City to Belton line. **0**	1) 16-inch Southern Star line four miles east, $4 M – Questionable Capacity 2) Cities gas service four miles east, $4 M – Questionable Capacity 3) Panhandle lines 12 miles south, $12 M + crossings + extra wall thickness for line through town, say 1.67x12 = 20 M **+3 to 19 million** + time for r.o.w. acquisition	6-inch water along Markey Road. 3-inch into Ammo Magazine site.	8-inch VCP sanitary sewer pipe on site.	Possibly within future ozone non-attainment area, have to resubmit Air permit.	Schedule Impact-Reapply for Permits, gas line extension impact to cost and schedule, land may be used for Belton Scenic Parkway. **+$3.4 to $19.4 million+ schedule impact**

(1) Acquisition Costs uses an estimated value for land inside "City Limits" to be $120K/acre and land outside "City Limits" to be $15K/acre for discussion purposes only and are based on an approximate land value, **approximate** costs for Richards-Gebaur land are from the Economic Development Corporation of Kansas City, Missouri and do not reflect actual cost of land; actual costs for land will vary.
(2) Differential Improvement Costs for Access to Electric Column do not reflect total actual costs. Differential costs are meant to compare the items of a design that differ from the recommended site, e.g. distances to electrical interconnect. Number assumes site requires substation and that new or reconductored line costs $1.0 M/mile.
(3) Differential Improvement Costs for Access to Natural Gas do not reflect total actual costs. Differential costs are meant to compare the items of a design that differ from the recommended site, e.g. distances to gas supply. Number assumes new gas line costs $1.0 M/mile and for large pipe runs through town an arbitrary factor of 1.67 was used to account for added costs of extra wall thickness, road borings, creek crossings, and r.o.w. or easement acquisition.



REV.	DATE	DESCRIPTION	DWN	CHK
0	6-2-04	ISSUED FOR APPROVAL	BGG	WR

Sealed Only When Signed in Blue Ink

Sega ®
Engineers – Architects – Technicians
Design – Construction – Field Service
16041 Foster
P.O. Box 1000
Stilwell, Kansas 66085-1000

Aquila

AQUILA NETWORKS
SITE EVALUATION MAP

DESIGN BY:	CHECKED BY:
W. ROMINES	W. ROMINES
DRAWN BY:	DATE:
B. GASPERS	5-22-04
CLIENT I.D.	SEGA PROJECT NO.
AQU0010B	04-144
CADD FILE NAME: 04144-S1	
DRAWING NO.	REV.
FIGURE 1	0

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Case No. EA-2006-0309

Schedule WW-5b

[redacted]

Aquila Networks - Missouri
Peaking Facility Site Selection

COMPREHENSIVE SITE EVALUATION
SUMMARY TABLE

Aquila

Rank	Site Name	Location in Missouri (City, Township, Range, Section, Elevation, Description)	Area for Development Δ Acquisition Cost [1]	Access to Electric Transmission Δ Improvement Cost [2]	Access to Natural Gas Supply Δ Improvement Cost [3]	Access to Potable Water	Access to Sanitary Sewer	Air Permit Comments	Fatal Flaw Σ Δ Cost
1.	**South Harper, Cass County**	**Southwest of Peculiar, T.45N-R.32W, Sec. 32, El. 981 Feet. Three miles south of Peculiar on the west of the intersection of 243rd St. and Harper Rd.**	**74 acres @ $13,000/acres = $1,000,000** **+ $400k**	**1) MPS 69-kV line north-south along west of property. 2) Two miles north of KCPL dual 161-kV lines. 3) Five miles south of MPS 345 kV line. 4) New 345 kV transformer and substation addition for $2.5 million.** **+ $5 Million for extension, + $2.5 Million for 345 kV sub.**	**1) Adjacent to Southern Star CGP compressor station. 2) Two Southern Star gas transmission lines transect property east-west. 3) Panhandle Eastern gas transmission lines two miles south of property.** **$0 - gas supply on site.**	**6-inch line along Harper Rd., PWSD No. 7**	**Sanitary Sewer located three miles north, inside Peculiar city limits**	**Significantly distant from future ozone non-attainment area.** Air permit reassignment req'd.	No Fatal Flaw. County zoning issue negated by planned Peculiar annexation. Stated support of City of Peculiar, West Peculiar Fire District, Public Water Supply District No. 7, and Ray-Pec School District. Chapter 100 financing proposed. **+$7.9 Million with shortest schedule impact and Chapter 100 financing.**
2.	Good Ranch, Raymore	In the City of Raymore, T.46N-R.32W, El. 970 Feet. Along east side of 71 Highway, south of 195th St..	150 acres @ $15,000/acre = $2,250,000 **+$1.9 Million**	1) MPS 345-kV line east-west across property. 2) Seven miles north of KCPL dual 161-kV lines. 3) New 345 kV GSU transformer and substation addition for $2.5 million **$2.5 Million**	1) Five miles north of Southern Star CGP compressor station and gas transmission lines. 2) Seven miles north of Panhandle Eastern gas transmission lines. **+$5 to $7 Million for gas line extension+** time for r.o.w. acquisition.	Existing potable water along 195th St.	Existing sanitary sewer located in nearby subdivision or inside Raymore city limits.	Significantly distant from future ozone non-attainment area. Air permit reassignment req'd.	Schedule Impact. **- County zoning issue negated by location inside City of Raymore. Support of City of Raymore, and Ray-Pec School District. However, developer moving slow on land sale.** **+ $9.4 to 11.4 Million + schedule impact for slow development.**
3.	Camp Branch, Cass County	T.45N-R.31W, Sect 25, EL-985 feet. One mile north of Harrisonville. Just northeast of intersection at Highway 7 and 235th Street, near the Aries Plant gas supply M&R station.	40 acres @ $15,000/acres = $600,000 Probable additional buffer area will be needed due to opposition. **$0**	1) KCPL 161-kV intersection of Highway 7 and 235th Street. 2) Adjacent to MPS 161-kV line **$0**	1) 30-inch and 12-inch S. Star (Williams) lines 1 mile north. $1 M 2) Adjacent to Panhandle Eastern lines No. 100, 200, 300, and 400. $0.5 M 3) S. Star M&R 1 mile north. $1 M – Questionable Capacity 4) Adjacent to Panhandle Eastern M&R. 5) Cities gas service three miles north – Questionable Capacity **$0**	12-inch line along Hwy. EE Water District No. 9	Sanitary sewer located two miles south inside Harrisonville city limits.	Significantly distant from future ozone non-attainment area. Air permit in final review	Schedule Impact. **- Due to zoning denial and expected litigation from Cass County and opposed surrounding landowners (Shafer Estates). Otherwise lowest cost site option for plant.** **Litigation: $1 Million + schedule impact.**
4.	North Lake, Cass County	City of Harrisonville Property East of North Lake, T. 45N-R.31W, Sect 21, EL-985 feet. One mile north of Harrisonville and one mile east of State Route 291 directly west of 235th Street and east of North Lake.	30 acres @ $15,000/acres = $450,000 **-$150,000**	1) KCPL 161-kV intersection of Highway 7 and 235th Street. 2) MPS 161-kV 2.25 miles east, 2.25M+ Overbuild at 7 Hwy and 235th and 69kV line tap=$1.0M+Time for easements **+$2.75 Million +** time for easement acquisition	1) 30-inch and 12-inch Southern Star (Williams) lines 1 mile north of 235th Street. $1M – Questionable Capacity 2) Panhandle Eastern lines No. 100, 200, 300, and 400 south of North Lake $0.5 M **$0**	12-inch line along Hwy. EE Water District No. 9	Sanitary sewer located two miles south inside Harrisonville city limits.	Significantly distant from future ozone non-attainment area, must resubmit Air permit	Schedule Impact-**Reapply for Permits, transmission upgrades needed, 10 acres less than 235th Street Site so less options for laydown, landscape buffer strips, etc. and will require demo of firearm target range.** **+$2.6 Million + schedule impact**
5.	Greenwood Power Plant, Jackson County	T.46N-R.32W, Sect 25 EL-1030 feet. On Smart Rd., west of James A. Reed Wilderness Area	22 Acres already owned **-$600,000**	Adjacent to MPS 161-kV, will need improvements to T&D lines and substation. **+$2.5 Million +** Possible Jackson Co. permit delay	1) Gas main 5 miles west and north. **+$5 Million**	Existing potable water on site.	Existing sanitary sewer on-site.	Possibly within future ozone non-attainment area, must resubmit Air permit.	Schedule Impact-**Reapply for Permits, improvement to T&D in Jackson County likely to prolong permitting.** **+$7.5 Million+ schedule impact**
6.	Section 33, Cass County	South of Raymore, T.46N-R.32W, Sect 33 EL-1030 feet. Half-mile southeast of Raymore city limits, off 195th Street.	40 acres @ $15,000/acre = $600,000 **$0**	345-kV MPS overhead power line located just west of proposed site. Would require 1 new GSU transformers in sub @ $2.5 Million. **+$2.5 Million**	1) Five miles north of Southern Star CGP compressor station and gas transmission lines.3) Two Amoco lines 2 miles west – Questionable Capacity 4) Cities gas service 2 miles west, $2 M + creek crossing @ $50,000+boring at road @ $50,000+pigstation @ $150,000 = $2.25 M add to schedule for r.o.w. acquisition – Questionable Capacity **+$5 to $7 Million for gas line extension +** time for r.o.w. acquisition	12-inch water line runs north along Section 32 and 33.	Existing sanitary sewer located in nearby subdivision or inside Raymore city limits.	Closer to future ozone non-attainment area, must to resubmit Air permit.	Schedule Impact-**Reapply for Permits, gas line extension impact to cost and schedule, and would require additional GSU transformer.** **+$7.5 to $9.5 Million+ schedule impact**
7.	North 235th Street (near Aries gas connection), Cass County	One mile north of Harrisonville. T.45N-R.31W, Sect 24, EL- 940 feet. Just northeast of intersection at 7 hwy and 235th Street.	40 acres @ $15,000/acres = $600,000 within full view of Shafer Estates Road - possible wetland areas/water features **$0**	1) KCPL 161-kV intersection of Highway 7 and 235th Street. 2) Adjacent to MPS 161-kV lines **$0**	1) 30-inch and 12-inch Southern Star (Williams) lines north of site $0.5 M 2) Adjacent to Panhandle Eastern lines No. 100, 200, 300, and 400 3) Adjacent to S. Star M&R 4) Adjacent to Panhandle Eastern M&R 5) Cities gas service 2.5 miles north. $2.5 M – Questionable Capacity **-$500,000**	12-inch line along Hwy. EE Water District No. 9	Sanitary sewer located two miles south inside Harrisonville city limits.	Significantly distant from future ozone non-attainment area, probably have to resubmit Air permit.	Schedule Impact-**Reapply for Permits, adjacent to (within 600') Shafer Estates and within full view of Shafer Estates, adjacent to high pressure gas, site located on water features which may cause schedule delay by complicating permitting, no future expansion, little laydown area, stormwater discharges directly to blue line and expected litigation.** **-$0.5 Million+ schedule impact**

Print Date: 021005

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Aquila Networks - Missouri
Peaking Facility Site Selection

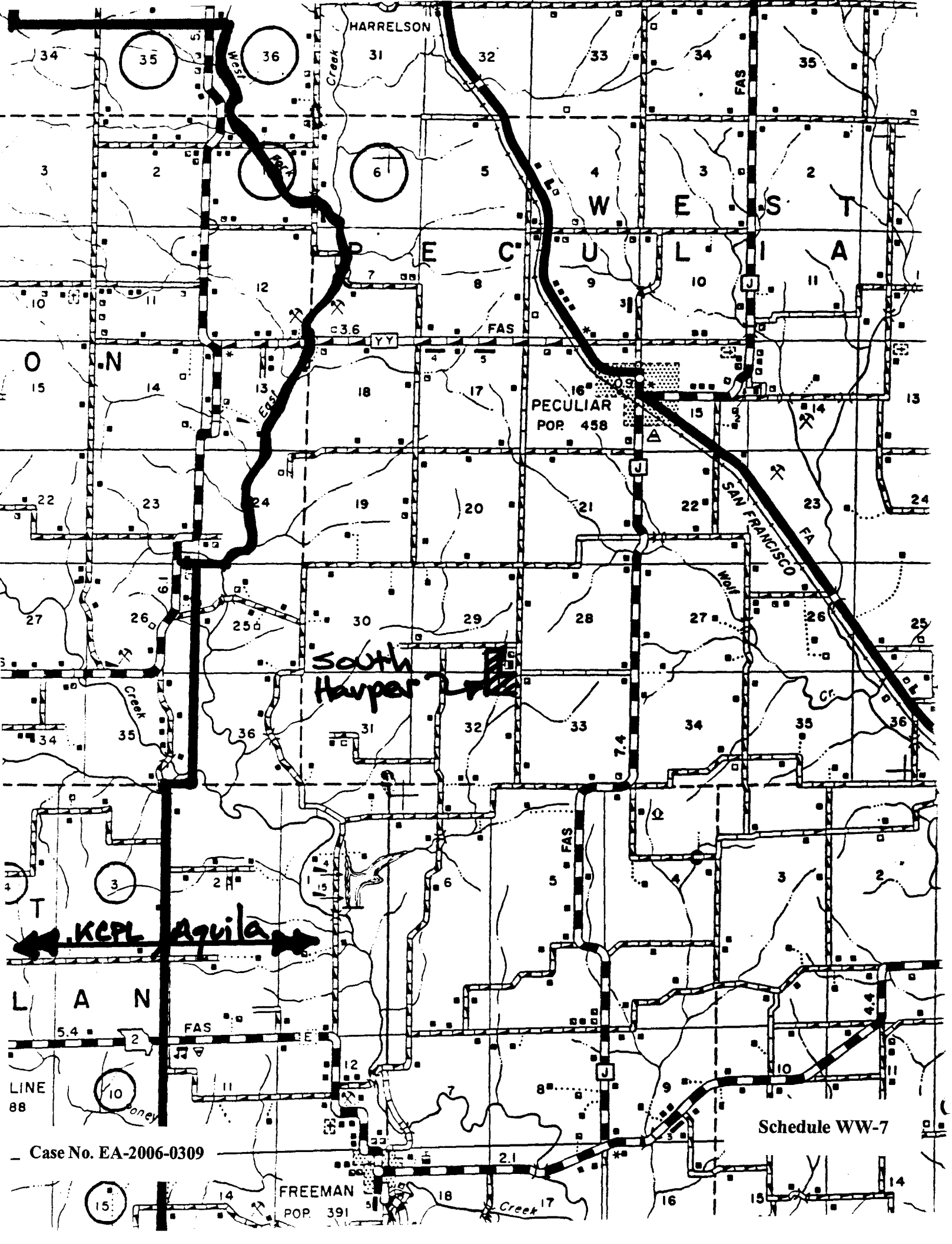
COMPREHENSIVE SITE EVALUATION
SUMMARY TABLE

Rank	Site Name	Location in Missouri (City, Township, Range, Section, Elevation, Description)	Area for Development Δ Acquisition Cost (1)	Access to Electric Transmission Δ Improvement Cost (2)	Access to Natural Gas Supply Δ Improvement Cost (3)	Access to Potable Water	Access to Sanitary Sewer	Air Permit Comments	Fatal Flaw Σ Δ Cost
8.	Turner Road, Cass County	Belton, T.46N-R.33W, Section 12 EL-1070 feet. Next to Turner Road Substation, Southwest of 71 Highway at intersection of State Highway Y and Turner Road.	20 acres @ $120,000/acre = $2,400,000 est. **+$1.8 Million**	New MPS 161-kV substation being constructed right next to proposed site, so deduct cost of substation ($4 M) and add cost of reconductoring 5 miles of 69-kV, $4 M = Net $0 **$0**	1) Panhandle East 12 miles south, $12 M + crossings + extra wall thickness for line proximate to town, say 1.67x12 = $20 M + add to schedule time for r.o.w. acquisition 2) Close to Richards Gebaur. Amoco line three miles east, $3 M – Questionable Capacity 3) Cities gas service three miles east, $3 M-Questionable Capacity **+$20 Million +** time for r.o.w. acquisition	16-inch water line on North Scott and 16-inch water line along Highway 71.	12-inch sewer line just south of Turner Road.	Very close to future ozone non-attainment area, must resubmit Air permit	Schedule Impact-**Reapply for Permits, Scenic Parkway may hinder development of needed acreage, land cost, gas line extension impact to cost and schedule, and cost of immediate upgrade of 5 miles of conductor.** **+$21.8 Million+ schedule impact**
9.	Ralph Green Power Plant, Cass County	Pleasant Hill, T.48N-R.30W, Section 19 EL-850 feet. Next to the Ralph Green Power Plant	Land already owned **$0**	161-kV substation 1 mile east- $1 Million **+$1 Million**	1) Two Amoco gas lines 4 miles east of plant, $4 M – Questionable Capacity 2) 8-inch Southern Star line intersects existing plant – Questionable Capacity 3) 20-inch Southern Start line 4 miles east, $4M – Questionable Capacity 4) Panhandle Eastern lines 7 miles south, $7 M + crossings + extra wall thickness for line through town, say 1.67x7 M = $12 M **+$4 to $12 Million +** time for r.o.w. acquisition	Existing potable water on site.	Existing sanitary sewer on site.	Very close to future ozone non-attainment area, must resubmit Air permit	Insufficient Space to site these 3 CT's on available space on this property **+$5 to $13 Million+ schedule impact**
10.	Sparling Property, Cass County	West of Peculiar, T.45N-R.32W, Sec. 8, El. 986 Feet. Northwest corner of intersection of Highway YY and Harper Rd.	Privately owned, 160 acres @ $20,000/acre = $3,200,000 est. **+2.6 Million**	1) MPS 69-kV line north-south through property. 2) Five miles north of KCPL dual 161-kV lines. 3) Two miles south of MPS 345 kV line. 4) New 345 kV GSU transformer and substation addition for $2.5 million **+$4.5 Million line upgrade + 345 kV Substation**	1) Three miles north of Southern Star CGP compressor station. 2) Three miles north of two Southern Star gas transmission lines. 3) Panhandle Eastern gas transmission lines five miles south of property. **+$3 to 5 Million +** time for r.o.w. acquisition	8-inch PWSD No. 7 water line 1 mile south.	Sewer service in adjacent City of Peculiar – across road.	Closer to future ozone non-attainment area, must resubmit Air permit	Schedule Impact **Landowner unwilling to sell pending litigation over expansion of adjacent rock quarry operation. Condemnation and/or litigation delays and costs likely.** **+$10.1 to $12.1 Million + schedule impact + litigation / condemnation.**
11.	Grand Oaks, Cass County	Northwest of Peculiar, T.45N-R.32W, Sec. 5, El. 990 Feet. Southeast corner of intersection of Knight Rd. and 203rd St.	Privately owned, 80 acres @ $20,000/acre = $1,600,000 **+$1 Million**	1) MPS 69-kV line on property. 2) Seven miles north of KCPL dual 161-kV lines. 3) One half- mile south of MPS 345 kV line. 4) New 345 kV GSU transformer and substation addition for $2.5 million **+$ 3 Million**	1) Four miles north of Southern Star CGP compressor station. 2) Four miles north of two Southern Star gas transmission lines. 3) Panhandle Eastern gas transmission lines six miles south of property. **+$4 to $6 Million +** time for r.o.w. acquisition	10-inch PWSD No. 2 waterline transects property.	Sewer service in adjacent City of Peculiar – across road.	Closer to future ozone non-attainment area, must resubmit Air permit	Schedule Impact **Location too close to Grand Oaks estate homes subdivision. Likely strong opposition from landowners and county. Likely litigation delays and costs.** **+$8 to $10 Million + schedule impact + litigation**
12.	Richards Gebaur Sites including Ammo Magazine, Cass County	Belton, T.46N-R.33W, Section 10 EL-1100 feet. Use of old Ammo Magazine site just south of Markey Road at Richards Gebaur.	40 acres @ $25,000/acre = $1 M **+$400,000**	Need to develop a line tap into the new 161-kV line running Martin City to Belton line. **$0**	1) 16-inch Southern Star line four miles east, $4 M – Questionable Capacity 2) Cities gas service four miles east, $4 M – Questionable Capacity 3) Panhandle lines 12 miles south, $12 M + crossings + extra wall thickness for line through town, say 1.67x12 = 20 M **+20 Million +** time for r.o.w. acquisition	6-inch water along Markey Road. 3-inch into Ammo Magazine site.	8-inch VCP sanitary sewer pipe on site.	Possibly within future ozone non-attainment area, must resubmit Air permit	Schedule Impact-Reapply for Permits, gas line extension impact to cost and schedule, land may be used for Belton Scenic Parkway. **+$20.4 Million+ schedule impact**

(1) Acquisition Costs uses an estimated value for land inside "City Limits" to be $120K/acre and land outside "City Limits" to be $15K/acre for discussion purposes only and are based on an approximate land value, **approximate** costs for Richards-Gebaur land are from the Economic Development Corporation of Kansas City, Missouri and do not reflect actual cost of land; actual costs for land will vary.

(2) Differential Improvement Costs for Access to Electric Column do not reflect total actual costs. Differential costs are meant to compare the items of a design that differ from the recommended site, e.g. distances to electrical interconnect. Number assumes site requires substation and that new or reconductored line costs $1.0 Million/mile.

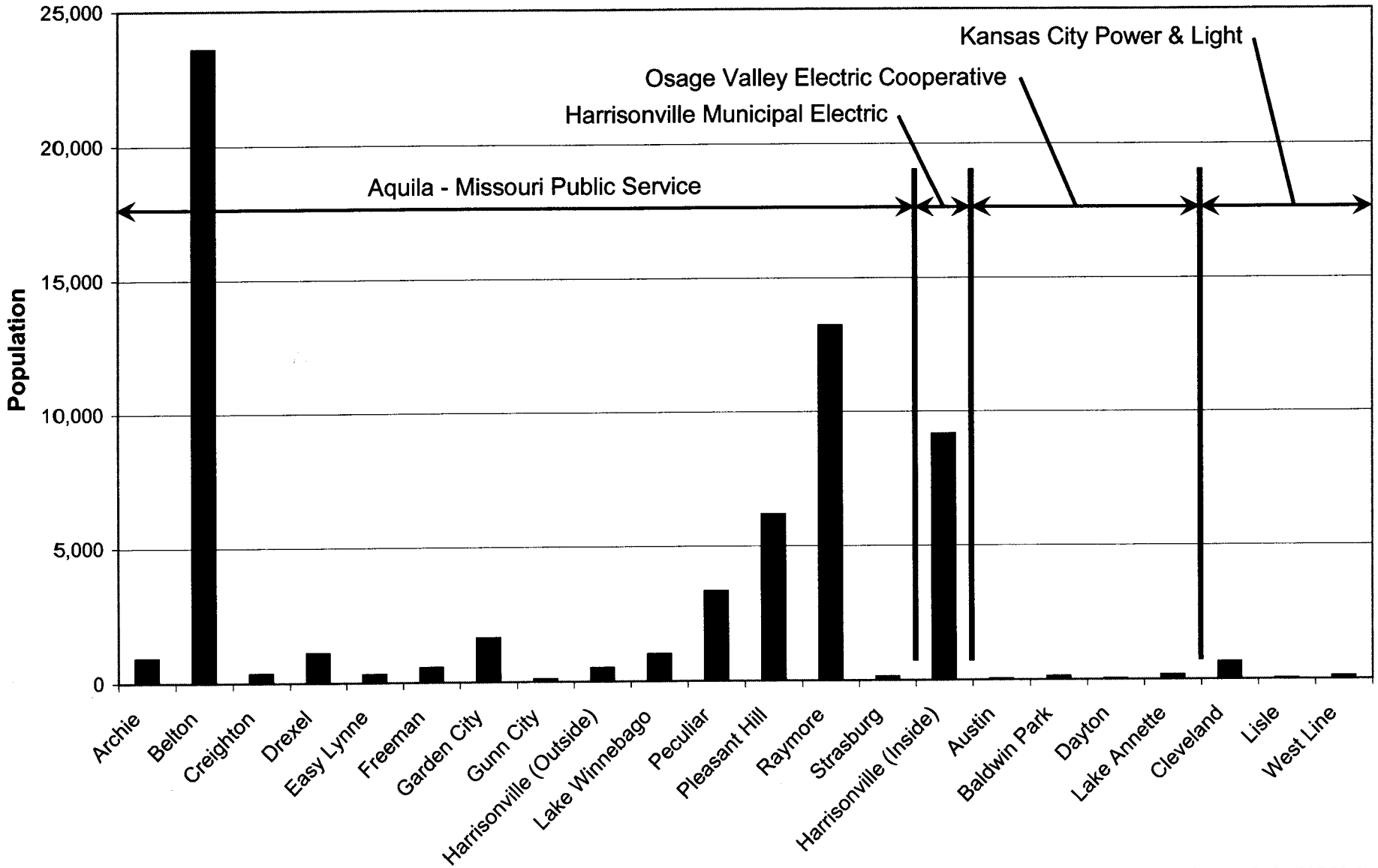
(3) Differential Improvement Costs for Access to Natural Gas do not reflect total actual costs. Differential costs are meant to compare the items of a design that differ from the recommended site, e.g. distances to gas supply. Number assumes new gas line costs $1.0 Million/mile and for large pipe runs through town an arbitrary factor of 1.67 was used to account for added costs of extra wall thickness, road borings, creek crossings, and r.o.w. or easement acquisition.



Schedule WW-7

Case No. EA-2006-0309

Communities in Cass County & Electric Service Providers



Case No. EA-2006-0309

Schedule WW-8

Source: AmerenUE

GENERATING AND POWER DISTRIBUTION SYSTEM